

ENERGY EFFICIENT COMPACT OIL AND WATER SEPARATOR

WHAT I CLAIM IS:

1. An energy efficient compact oil and water separator comprising:

An enclosed containment vessel through which a mixture of oil and water passes for the purpose of extracting water from oil and oil from water, an inlet conduit for receiving said mixture, an oil outlet conduit, a water outlet conduit, at least one permeable baffle utilizing capillary attraction to extract the water from the oil and oil from the water placed in the flow path of both the oil and water, also a permeable barrier placed in the flow path of the oil, said barrier to include a means for discretely regulating its permeability and an additional permeable barrier placed in the flow path of the water said additional barrier to include a means for discretely regulating its permeability.

2. The separator of claim 1 including having the permeable barriers of louvered shutter type construction wherein the louvers are rotatable.
3. The separator of claim 2 including exterior means for rotating the louvers, said exterior means to be in the form of an indicator of the angular position of the louvers.
4. The separator of claim 1 including a heating means, said heating means of a U shape with a burner on one end and an exhaust stack on the other and also including a multitube section on the exhaust side in upstream relationship to said exhaust stack
5. The separator of claim 1 including a flow diversion structure for causing the oil to flow, at least momentarily, in a generally downward flow path as it passes through said containment vessel.

6. The separator of claim 5 including a means for imparting an electric field within the downward flow path of the oil.
7. The separator of claim 5 where there is at least one horizontally positioned permeable barrier transverse to the downward flow path of the oil, said barrier to include a means for discretely regulating its permeability.
8. The separator of claim 7 where the permeable barrier is a louvered shutter type structure with the louvers being rotatable.
9. The separator of claim 8 having an exterior means for rotating the louvers, said exterior rotating means to be in the form of an indicator of the angular position of the louvers.
10. An energy efficient compact oil and water separator comprising:
 - a. an enclosed containment vessel having an inlet, oil outlet and water outlet and through which a mixture of oil and water passes for the purpose of extracting water from the oil and oil from the water,
 - b. at least one permeable baffle placed in the flow path of the oil and water to apply capillary attraction to coalesce the discontinuous phase fluids,
 - c. at least one permeable barrier placed in each of the flow paths of the oil and water and having a means for discretely regulating the permeability of each barrier,
 - d. an electric field residing within said vessel through which the oil flows in a downwardly direction,

- e. at least one horizontally positioned permeable barrier transverse to the electric field on which the permeability of said barrier can be regulated, and
 - f. upstream of said electric field a U tube heating means with a burner on one end of the U tube and an exhaust stack on the other end and including a multi-tube segment on the exhaust side of the U tube.
11. The separator of claim 10 wherein the said permeable barriers are of a louvered shutter type construction with rotatable louvers and external means for rotating the louvers with said rotating means in the form of an indicator to show the angular position of the louvers.
12. An energy efficient compact oil and water separator comprising:
An enclosed containment vessel through which a mixture of oil and water passes for the purpose of extracting water from oil and oil from water, an inlet conduit for receiving said mixture, an oil outlet conduit, a water outlet conduit, a flow path diversion structure for the purpose of, at least momentarily, directing the oil flow in a downward direction and a horizontally positioned permeable barrier with a means for regulating its permeability transverse to the downward flow path of the oil.
13. The separator of claim 12 including a means for imposing an electric field within said flow path diversion structure in the path of the downwardly flowing oil.
14. The separator of claim 12 wherein said permeable barrier is in the form of a louvered shutter type structure with rotatable louvers.

15. The separator of claim 14 including an external means for rotating the louvers said external means shall also indicate the angular direction of the louvers.